In Search of Board Independence:

Former Employees, Shades of Gray and Director Classifications Revisited

Joel F. Houston[a], Jongsub Lee[b], and Hongyu Shan[c]

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Abstract

We demonstrate that a measure of a board's functioning independence should incorporate both the varying roles played by its gray directors and its decision on whether to classify former employee directors as independent or gray. We first find increasing corporate fraud when former employees serve as gray directors. By contrast, other "outside" gray directors who are bankers/consultants are less associated with fraud. We also find that fraud is even more likely when boards aggressively classify a former employee as an independent director. We provide additional evidence of increasing internal agency conflict of a board with former employees from CEO turnover.

JEL Classification: G01, G28, G34, K40, K41;
Key words: functioning independence, corporate fraud, CEO turnover, former employees, gray directors, shades of gray, cooling-off period, reporting conservatism.

[a] joel.houston@warrington.ufl.edu, [b] jongsub.lee@warrington.ufl.edu, [c] hongyu.shan@warrington.ufl.edu.
All authors are with the Warrington College of Business, University of Florida. We thank Jay Ritter, M. Nimalendran, Adam Yore, Matthew Souther and seminar participants at the University of Florida for helpful comments and suggestions.

1. Introduction

By many indications, corporate fraud and misconduct remains a significant problem. Between 2000 and 2012, investors initiated 2,378 federal securities class action litigations and nearly a third of the S&P 500 firms were sued for serious governance failures including financial misstatements, failures to disclose important information, insider trading and/or option back-dating. Relatedly, the 2013 KPMG Integrity Survey reports that 73% of the 3,500 surveyed employees witnessed misconduct over the prior year.[1] These numbers are very similar to those in the earlier 2005 and 2009 surveys. The continued prevalence of corporate fraud has occurred despite efforts such as the Sarbanes-Oxley Act (SOX), which was enacted in 2002 in the aftermath of a series of high-profile scandals including Enron and WorldCom.

Congress designed many of the SOX reforms with a particular emphasis on further encouraging the active monitoring of corporate boards, most particularly by mandating a greater role for independent directors. Relatedly, a large academic literature has highlighted the importance of board independence and has explored its effects on various measures of firm performance (Fama and Jensen (1983), Bhagat and Black (2002), Yermack (1996), Harris and Raviv (2006), Nguyen and Nielsen (2010), Armstrong, Core and Guay (2014)). Despite the strong push for greater director independence, the observed links between various measures of board independence and firm performance are often quite weak.

While much of the traditional literature in this area has taken reported measures of board independence (i.e., director classifications) as given, there may be significant gaps between the measured and actual "functioning" level of board independence. One reason for this gap is that independent directors may be well intentioned, but their inability to directly observe the firm's day-to-day operations limits their effectiveness. This limitation is likely to be particularly important when it is costly for outsiders to acquire relevant information about the firm (Duchin, Matsusaka and Ozbas (2010)). Another possible reason is that because of conflicting incentives and/or loyalties, independent directors may be more aligned with current management and less

[1] See KPMG Forensic. Integrity Survey 2013 (Rep.), KPMG Forensic. Integrity Survey 2009 (Rep.).

inclined to serve as independent monitors acting on behalf of the broader interest of shareholders (Hermalin and Weisbach (1988), Rosenstein and Wyatt (1990), Adams and Ferreira (2007)). With these concerns in mind, a number of interesting papers have sought to develop better measures of true independence that take into account factors such as the directors' skill sets (Ramirez (1995), Guner, Malmendier and Tate (2008), Goldman, Rocholl and So (2008), Kroszner and Strahan (2001)), information costs (Duchin, Matsusaka and Ozbas (2010)), and their shared social, professional, and intangible belief connections with members of the management team (Hwang and Kim (2008), Fracassi and Tate (2012), Lee, Lee, and Nagarajan (2014)).

These existing studies have primarily focused on the directors who are classified as independent in the major director databases (ISS and BoardEx), and they often ignore directors who are not clearly insiders or outsiders, but are instead classified as "gray." Gray directors are non-executive directors who have a linked affiliation with the company in some form or another, and thus, cannot be easily classified as either independent or executive directors. These gray directors include former employees as well as some outsiders who have a financial connection to the firm beyond the payment they receive as board members. Despite their prevalence (for example, they are found in 51% of the S&P 500 firms from 2000 to 2012), their influence on the board monitoring function has not received all that much attention in the literature.[2]

This limitation often results in these gray directors being indirectly classified as "non-independent," regardless of their fundamental characteristics. However, we suspect that there are important "shades of gray," in which different types of gray directors may influence board dynamics in very different ways. Depending on the circumstances, we can envision scenarios where gray directors are aligned with executive directors, and other scenarios where they may be very actively aligned with outside independent directors. In typical cases where executive transitions go smoothly, we might expect that former employee gray directors are more likely to be aligned with current executives on the board. In stark contrast, other gray directors, including

[2] The percentage is 47% if using ISS classification instead of BoardEx classification.

bankers and consultants who are outsiders, may not necessarily align with inside directors, particularly in circumstances where outside gray directors have strong incentives to maintain reputations for being independent. Notably, these outside gray directors may be quite informed about specific aspects of the firm due to their skills and experience, and therefore, may be acting more like informed outside directors who can provide effective checks and balances over the management team. The differences in the types of gray directors could have important spillover effects on the functioning level of board independence, and by re-classifying these gray directors, we aim to provide a better measure of board independence that incorporates the entire board's oversight function, including both independent and outside gray directors on the board.

Further complicating matters, we find that firms have discretion in whether they choose to report some of its former employ directors as gray or independent. Ultimately, how firms with discretion choose to classify these former employee directors also provides a valuable window into the firm's true desire for independence. Interestingly, this level of discretion has varied over time, being influenced by changes in the independent director requirements established by the major exchanges (NYSE/NASDAQ) following the passage of SOX as well as the structural shift in director classification criteria adopted by the third party proxy agent, ISS. For example, after SOX, the major exchanges imposed a listing requirement that former employees could not be classified as independent if they had worked for the company within the past three years. Prior to this rule change, the "cooling-off" period for a former employee independent director had been just one year. Similarly, ISS's 2007 reclassification stipulated that former employee directors can be classified as independent if they had retired five or more years ago. Before this reclassification, ISS had classified all former employees as gray. This reclassification could have important spillover effects on firms' discretion on which directors they want to classify as independent or gray. As a consequence of these changes, the distinction between gray and independent directors has become blurred in both databases (ISS and BoardEx). [3] This

[3] The ISS database publishes its own independence standards and independently identifies the directors' classifications (independent, gray/linked, employee), whereas the BoardEx categories are simply based on the reported classifications in the firm's proxy statements.

endogenous director classification issue notably centers on the board's classification discretion regarding former employee directors.

We argue that a true measure of board independence requires a careful disentangling of the functioning role of non-former, non-executive directors and the board's decision on whether to conservatively report former employees as gray directors, or to perhaps more aggressively classify them as independent directors. Given this perspective, we define the functioning level of board independence as the fraction of reported independent and gray directors less former employees on the board. It follows that the difference between our new measure of functioning board independence and the traditional board independence comprises two elements: 1) *shades of gray*, i.e., the inclusion of outside gray directors but exclusion of former employee gray directors and 2) *reporting conservatism*, i.e., the exclusion of former employees who are classified as independent.

Our analysis concentrates on S&P 500 firms over the time period 2000-2012 and focuses primarily on the various connections between board structure and the incidence of corporate fraud. Consistent with much of the literature that fails to find a strong link between board independence and firm performance, we first find that board composition as traditionally measured by the fraction of independent directors on the board has little effect on the incidence of corporate fraud. However, consistent with our hypotheses, we show that a measure of our new "functioning" independence is negatively correlated with corporate fraud. This negative relationship is both economically and statistically significant, and also robust to various alternative specifications. More specifically, we find that a 1% *increase* in the percentage of functioning independence level is associated with 0.2% *decrease* in the likelihood of fraud. This finding suggests that a newly elected former employee director serving on a board of 10 directors (replacing another non-executive director while holding other board compositions the same) would account for a 2% increase in the fraud likelihood, which is quite notable given that the average fraud likelihood in our sample is just 10%.

Board size tends to be static during our sample period. Consequently, the presence of former employees on the board significantly increases the likelihood of alleged fraud as revealed

in investors' class action lawsuits. We find that these effects are particularly pronounced in the cases where a firm's board uses its discretion to aggressively classify their former employees as independent directors. We also find that gray directors who are outside consultants significantly reduce corporate fraud intensity, whereas gray former employee directors significantly increase the fraud likelihood. The gray consultant directors' effects are particularly strong when they have significant external connections through multiple board memberships, implying significant reputation concerns among those outside gray directors. Altogether, these findings lend support to both the shades of gray and reporting conservatism effects.

We further construct a series of conditional tests to explore the types of former employee directors who are more likely to exacerbate internal corporate governance. We find that fraud is more likely to occur if a former employee director did not serve as CEO[4], if a former employee serves on the audit and/or compensation committee, and if a former employee previously served coincidentally as an executive director on the board with the current CEO. Interestingly, however, we find that former employee board members are more independent and less associated with fraud if they share broader social and professional connections with board members outside of their firm. These results highlight the possible negative governance consequences of directors having strong "internal" connections with current management. The existing director studies (Hwang and Kim (2008), Fracassi and Tate (2012)) primarily focus on external network connections between the CEO and independent directors, and often ignore the effects of these internal connections.

Finally, using the exogenous change in the NYSE/NASDAQ independent director requirements, we show causal evidence on the effect of former employee directors on corporate misconduct. The NYSE/NASDAQ independent director criteria, which was proposed in June 2002 and approved by the Securities Exchange Commission (SEC) in November 2003, indicate that a director who has been employed by the company within the last three years cannot be

[4] Fahlenbrach, Low and Stulz (2010) also finds that retiring CEOs are more likely to join other companies as independent directors while lower-ranked former employees are more likely to stay on the board as former employee directors.

classified as independent. This exogenous rule change, coupled with the increasing demand for board independence during the SOX compliance period, suggests that a firm whose board includes such former employees is likely to replace them with new directors who are eligible to be classified as independent under the new criteria. Using this exogenous reduction in the number of recently retired former employees on the board, we construct instrumental variable (IV) probit regressions and confirm the causal relation between former employees on the board and increasing corporate misconduct. It is unlikely that firms could perfectly foresee the three-year "cooling-off" period of the new independent director requirements by NYSE/NASDAQ before its announcement, thus our IV probit regression results are likely to be causal. Moreover, the covariate balancing tests confirm that our control experiments are well-randomized and unlikely to suffer from potential cross-sectional endogeneity issues (Atanasov and Black (2015)).

While we use corporate fraud as our main proxy for poorly functioning internal governance, we also consider CEO turnover as an alternative measure – arguably, poorly performing boards are also less likely to penalize CEOs for poor performance (Yermack (1996), Huson, Parrino and Starks (2001), Hwang and Kim (2009), Kaplan and Minton (2012), Jenter and Kanaan (2015)). To provide external validity for our main results, we also demonstrate that the sensitivity of CEO turnover to firm performance is significantly weakened if a former employee serves on the board.

We believe our paper contributes to at least four important areas of the literature. First, we extend the literature that explores the connections between board structure and firm performance (Yermack (1996), Bhagat and Black (2002), Harris and Raviv (2008), Nguyen and Nielsen (2010), Larcker, Reiss and Xiao (2015)).[5] More specifically, we demonstrate that measures of true independence need to take into account the various roles played by gray directors, and to account for whether these directors play key roles regarding firm governance and whether their interests are more closely aligned with current management or other outsiders. We introduce the database-neutral and consistently measured functioning board independence

[5] Armstrong, Core and Guay (2014) also recently show that the existence of independent directors in crucial board functions tend to significantly increase corporate financial transparency.

level that explicitly accounts for the different techniques that the traditional databases have used to measure independence. While it is not the key focus of our paper, developing these consistent measures of board independence also enables us to explore interesting questions such as the evolution of board independence over time, and to offer insights into the specific roles played by the non-executive directors.

Second, our paper makes an important contribution to the literature that explores career concerns, firm dynamics and the role of former employees (Zajac and Westphal (1996), Shivdasani and Yermack (1999), Fahlenbrach, Low and Stulz (2010), Nguyen-Dang (2012)). We show that former employee directors, namely those who retired from executive positions and still remain on the board, are more subject to potential entrenchment issues if they have strong established connections with the current senior executives. None of the existing studies have delved into this entrenchment issue for former employee directors.

Third, we introduce a novel notion of a firm's "reporting conservatism." Endogenous board classification schemes could reflect the board's overall culture, which in turn significantly affects corporate governance and board decision-making. We highlight the corporate governance consequences of boardroom conservatism, and we specifically reveal this relation from investor initiated federal securities litigations.

Last but not least, our paper contributes to the literature exploring the determinants of corporate fraud (Field, Lowry and Shu (2005), Dyck, Morse and Zingales (2010), Yu and Yu (2011), and Karpoff, Koester, Lee and Martin (2016)). Our study differs from these studies by focusing specifically on the type of board structure/dynamics that is more likely to induce corporate frauds. By contrast, many of the existing papers focus on the mechanisms by which fraud was detected by various non-director stakeholders (shareholders, employees, media, and regulators).

2 Context and Framework

Before proceeding to our empirical analyses, we begin by developing a broad conceptual

framework for understanding the links between our measure of functioning board independence and the level of effective monitoring, which is ultimately reflected in the firm's likelihood of committing fraud. Our framework builds on the assumption that former employee directors are more likely to be aligned with current management due in part to their past relationships and continued ties with the company's management, whereas other types of non-executive outside directors, regardless of their director classifications being gray or independent, are more likely to effectively monitor the incumbent management team.

Supporting this assumption, we find that 86.29% of the former employee directors in our sample transitioned directly from serving as an insider and they worked together in the C-Suite with the current CEO for 2.77 years on average before retirement.[6] By contrast, although outside directors do receive compensation for serving on the board, the average level of their compensation (typically around $100,000 a year) is relatively small, given that the average (median) S&P 500 director has a personal wealth of totaling $60,580,000 ($860,000).[7] Consequently, we suspect that, on a *relative* basis, these outside gray directors are less likely to collude with the incumbent management than are former employees with long-standing ties to the firm's insiders.

Given this perspective, measuring the functioning level of board independence requires important adjustments that take into account the specific roles played by a firm's former employee directors as well as the contrasting roles played by outside directors. By consistently excluding former employees from the group of non-executive directors, we develop a functional level of board independence (*FI*) that comprehensively measures the monitoring intensity of all non-executive board members. This new measure contrasts to the traditional board independence (*TI*) that focuses solely on non-executive directors who are explicitly reported as independent.

[Insert Figure 1 here]

[6] For the remaining 13.71% of former employee directors, we find that since their retirement, they launched their own business, or continued to work as other companies' executives/outside board members, or served as directors of non-profit organization boards, etc. before they return to the boards of companies where they were employed before retirement.

[7] These personal wealth statistics are computed using the director *TotalWealth* variable in BoardEx.

Figure 1 visualizes the difference between the traditional independence measure (*TI*) and our functional board independence (*FI*). The top graph illustrates the traditional director classifications, where the board consists of executive directors (*E*) and non-executive directors who are listed as either independent (*I*) or gray (*G*). The bottom graph provides a further decomposition of the director fundamentals. In this illustration, the non-executive directors are broken down into three categories: outside directors reported as independent (Group *A*), former employee directors who may be reported as either independent or gray (Group *B*), and outside directors who are reported as gray (Group *C*). Our measure of functional independence excludes all directors who are either current or former employees, and is represented by the complete set of outside directors (Group *A* + Group *C*).

More formally, the difference between our measure of functional independence and traditional independence can be decomposed as follows:

$$
\begin{aligned}
& FI - TI \\
&= [(I_{i,t} + G_{i,t}) - former_{i,,t}] - I_{i,t} \\
&= G_{i,t} - former_{i,t} \\
&= \underbrace{G_{i,t}\ (non\text{-}former)}_{Shades\ of\ gray} - \underbrace{I_{i,t}\ (former)}_{Reporting\ conservatism}
\end{aligned}
\qquad \text{Eq. (1)}
$$

where $G_{i,t}$ *(non-former)* is the percentage of gray director(s) on the board *i* in year *t* who are not former employees, and $I_{i,t}$ *(former)* is the percentage of former employee director(s) classified as independent. These two components highlight each of our main hypotheses.

The "shades of gray" hypothesis is highlighted in the first component of Eq. (1). Our measure of functional independence hypothesizes important distinctions among reported gray directors. More specifically, while former employee gray directors are viewed as non-independent, gray directors who are not former employees, $G_{i,t}$ *(non-former)*, may provide important oversight and serve to make the board more functionally independent.

Our second hypothesis suggests that boards where former employees are more aggressively classified as independent (as measured by $I_{i,t}$ *(former)* in Eq. (1)) are less likely to

be functionally independent. Arguably, firms that are less conservative in their director classifications provide a valuable window into their overall governance practices. We expect that these firms will be less willing to report valuable information, less likely to fully comply with various regulations and more likely to be associated with fraud.

Taking a step back, while it is certainly reasonable to use the director classifications reported by a firm as an indicator of its reporting conservatism, one may argue that the classifications assigned by the third party proxy agent (ISS) are less indicative.[8] However, there are important spillover effects that may arise when ISS classifies a former employee as an independent director. Most notably, such a classification scheme by ISS may arguably give the firm more flexibility in reporting some of their former employees who are internally connected to the current top managers as independent. If true, the spillover effects suggest that the reporting conservatism could be database-neutral.[9]

From the foregoing discussions, we expect that the presence of former employee directors significantly reduces the board's overall monitoring effectiveness and leads to an increased likelihood of the firm being associated with fraud. The effects should be stronger when the former employee directors are subject to conflicts of interests by serving on critical monitoring committees such as the auditing and compensation committees; and when they have previously served as executive directors with the current CEO of the firm (usually as partners in the C-Suite). By contrast, our shades of gray hypothesis implies that non-former employee gray directors (such as consultants and bankers) should be weakly or negatively associated with fraud. Finally, according to our reporting conservatism hypothesis, when a company aggressively reports a director as independent even though he/she has worked in the firm with current top managers for many years, it is more likely to suffer from weak oversight. We test each of these predictions in our subsequent empirical analyses.

[8] Again, it should be noted that among the two major director databases, the BoardEx categories are based on the director classifications reported in a firm's proxy statements. In contrast, the ISS database independently identifies director classifications using their own criteria, which are provided in their annual proxy voting guidelines.

[9] This is ultimately an empirical question that we carefully examine in the later Section 4.3.

3 Sample Formation and Variable Construction

3.1 Sample Selection

Our sample consists of a total of 4,419 firm-years of the S&P 500 universe in the intersection of the BoardEx and the ISS databases from 2000 to 2012. We collect the director-level characteristics from BoardEx and ISS, firm financials from COMPUSTAT and CRSP, and financial litigations data from the Stanford Securities Class Action Clearinghouse website. Following the literature (Linck, Netter and Yang (2008); Lee, Lee and Nagarajan (2014)), we consider *return*, *volatility*, *size, board size* and *operating profit* as our main firm-level control variables. In our robustness tests, we consider *roa* instead of *operating profit,* and *buy-and-hold return* (*BNH*) instead of *average yearly return* as alternative measures of the corporate and stock market performances. Appendix A provides more detailed definitions of these variables.

3.2 Corporate Fraud Litigations

Following Dyck, Morse, and Zingales (2010), we use the Stanford Securities Class Action Clearinghouse (SCAC) website to collect incidences of corporate fraud among S&P 500 firms against which a securities class action lawsuit has been filed under the provisions of the Federal 1933/1934 Exchange Acts. Based on the examinations from Karpoff, Koester, Lee and Martin (2016), nearly 100% of the class action lawsuits in SCAC correctly identify alleged fraud events. This identification ratio is much higher than those in other fraud databases, including the Government Accountability Office (GAO), the Center for Financial Reporting Management (CFRM) and the Accounting Analytics (AA). For each case initiated between 2000 and 2012, we collect the company name, filing date, district court, exchange, ticker, class period start and end dates, financial misstatement dummy (Y/N), dismissal dummy (Y/N), settlement dummy (Y/N), and settlement amount (if any). Our sample includes a total of 438 firm-years associated with fraud litigations. This comprehensive sample covers cases in various types, statuses and settlement amounts. We collectively refer to these suits as incidences of fraud throughout the rest of the paper.

In contrast to the existing literature on shareholder-initiated class action lawsuits (e.g.

Grande and Lewis (2009)), we focus on the window within which the fraud actually happened, rather than the filing date when it was detected. The time between class action start date and end date represents an important and often dramatic illustration of the board's failure to provide their essential oversight function. We posit that the board elected in time *t*, assumes important monitoring responsibilities in the upcoming year, and is therefore accountable for any fraud occurring in year *t+1*. Based on this timing protocol, we define our firm-year fraud dummy.

In the robustness tests, we further eliminate all of the dismissed cases and restrict our fraud sample to only the settled cases to ensure that our results are driven by confirmed fraud cases. One could also be concerned about a limited coverage of fraud in the SCAC database, because the database focuses exclusively on private lawsuits and possibly omits many instances of financial fraud that trigger regulatory enforcements (Karpoff et al. (2016)). To show the robustness of our results to these concerns, we also broaden the definition of our fraud dummy by further incorporating the AAER enforcement initiated by SEC. Our main inferences remain robust to these additional considerations.

[Insert Table 1 here]

Panel A of Table 1 provides the summary of statistics for the firm financial variables we use as controls in our subsequent regression analyses. Panel B of the same table describes our main dependent variables. This panel reports the number of corporate fraud litigations by their settlement status as of January 2016, and shows the year-by-year break down of filed frauds during our sample period.

3.3 Boards and Directors

We obtain director-level and board-level data from two major director databases used in the literature, BoardEx and ISS (formerly RiskMetrics). For the typical director, we use BoardEx to obtain the self-reported director classification (independent, gray or employee director), role on the board (nomination, audit or compensation committee), employment histories, and the total number of board positions (at both the current and other firms). ISS independently identifies the director's classification, and complements the BoardEx database by specifying the types of affiliations if the director is a gray/linked director, such as professional service providers,

business customers, suppliers, former employees and immediate family members of executives. We merge these two databases according to the directors' cleaned first and last names, company CUSIPs and fiscal years. Our matched sample covers over the firms and their directors in the S&P 500 universe from 2000 to 2012.[10]

BoardEx collects data directly from the firm's proxy statements, 10-K filings and 10-Q filings. In this regard, BoardEx captures the firm's self-reported classifications of whether the director is an independent, gray or inside director. In contrast, ISS uses a wider range of publicly available data to independently classify directors according to its own standards for director independence.

[Insert Table 2 here]

Table 2 provides relevant summary statistics for each of the two databases. A majority (51%=174.46/339.92 for BoardEx) of the firms in our sample have at least one gray director. In Panel A, we see that ISS classifies 8.5% of all directors as gray. The corresponding percentage for BoardEx is 9.6%. In the ISS classification, one can see a sharp jump in independent directors and the corresponding sharp decline in gray directors between 2006 and 2007. This structural break in the ISS database exists due to the acquisition of ISS (when it was formerly named IRRC) by RiskMetrics Group in 2007, after which RiskMetrics significantly relaxed its director independence standards (see Appendix B for more details on these ISS director criteria changes).

Looking at Panel B, we see that while there is considerable agreement between the two databases, there are a significant number of cases where ISS and BoardEx classify the directors differently.[11] By far, the most notable differences center on the treatment of gray versus independent directors. Over the full time period (*00 - 12*) for the full set of directors in the S&P 500 sample, 4.19% of directors are classified as gray by ISS (*ISS:G*) but as independent by BoardEx (*BoardEx:I*). Likewise, 4.82% of the directors are classified as gray by BoardEx

[10] We download the list of all S&P 500 firms from CRSP. BoardEx appears to backdate the index affiliations and misclassify many firms in earlier years. For example, we find 90 firms were S&P 500 firms in 2001 according to CRSP but not classified correctly in BoardEx.

[11] Appendix B explains how classification standards for independent directors evolved over time and across BoardEx and ISS databases during our sample period. Several cases where a firm's board endogenously changes its director classifications under the regulatory changes are further explained in the appendix.

(*BoardEx:G*) but as independent by ISS (*ISS:I*). Only 4.18% of the directors are classified by both as gray. In round numbers, if one database classifies a director as gray, the other database agrees 50% of the time, and 50% of the time classifies the director as independent. This classification discrepancy between the two major director databases has not been documented in the existing literature.

Since SOX occurred during our sample period, it is also important to take into account its effects on board composition. In Panel A of Table 2, one can see that the average board size remains virtually unchanged over our sample period. The average board size was 10.68 in the ISS database for the full sample period, and the board size is similar across the first and second half of our sample period (10.64 in the 2000-2006 period, and 10.73 in the 2007-2012 period). A similar pattern emerges in the BoardEx data.[12] While average board size remained unchanged, there was a meaningful shift in average board composition. Most notably, the percentage of independent directors increased, whereas the percentage of gray and employee directors declined. The pattern is more evident for gray directors. Figure 2 graphically summarizes these time series patterns of several key board characteristics during our sample period.

[Insert Figure 2 here]

Figure 2 clearly demonstrates that the percentage of independent directors steadily increases over time, while there is a corresponding percentage drop in the percentage of gray directors. These interactive trends are similar in both databases, although it is noteworthy that there was a greater shift in the self-reported BoardEx data. Figure 2 also indicates that these shifts were particularly strong in the three-year transition period (2002–2004) following SOX and the major stock exchanges' listing requirements including a majority of independent board directors (see "NASD and NYSE Rulemaking: Release No. 34-48745," SEC, November 4, 2003).

[Insert Table 3 here]

Table 3 focuses more specifically on the group of gray directors in both ISS (Panel A) and BoardEx (Panel B) classifications. The unit of observations in this table is the director-firm-

[12] In the BoardEx database, the average board size was 10.99 over the full sample period – 11.00 in the 2000-2006 period, and 10.98 in the 2007-2012 period.

year. The table shows that gray directors are from a variety of backgrounds. A significant portion are former employees (31.82% in the ISS sample in Panel A and 19.44% in the BoardEx sample in Panel B), while the remainder are either outsiders with consulting or other business ties to the firm, or they are simply classified as "other."

We manually collected and created the former employee dummy (Y/N), the termination year and title of their executive position in the firm (CEO, CFO, VP, Founder etc.). As a result, relative to the standard ISS database, we have significantly expanded the available information regarding former employee directors. Specifically, we increased the number of identified former employee directors (on a director-firm-year level) from 1186 to 1461, the data regarding the year of termination from 1122 to 1430, and information about their executive titles from 0 to 1430. We use Bloomberg, Capital IQ, press releases, interviews and proxy statements as the main sources of this information. As a result, we have assembled a dataset that has comprehensive coverage of available data regarding former employee board members.

As previously described, the ISS database is significantly affected by the structural break in 2007. Following its acquisition by RiskMetrics Group in 2007, ISS re-classified many directors from gray to independent, allowing former employees who retire company more than five years as of their board positions to be eventually classified as independent directors. The effects of this change are confirmed by the sharp decline in gray former employee directors around 2007 from 107 to 47 in Panel A of Table 3.

Before we proceed, it should be noted that since former employee data are based on our manually collected information, our set of former employee directors is independent of the director classifications that are used in either of the traditional databases.[13] As a result, our new measure of functioning board independence, which from the total board size and the number of former employees, is database-neutral.

[Insert Table 4 here]

[13] The sum of former employee gray and former employee independent directors in the two databases is identical. There are a total of 1,430 such director-firm-year observations in our sample.

3.4 Firm Level Descriptive Statistics on Board Composition and Frauds

Table 4 provides the descriptive statistics on our main board composition variables at the firm level. These firm-level board composition variables are used as the main explanatory variables in our regression analyses.[14] Our main dependent variable is the *fraud* dummy whose sample average is 10%. In our sample, 27% of firm-years have at least one former employee director on board (see the mean value of 0.27 of the dummy, *former*), and these former employees serve on the audit committee (*former(audit)*) in 6% of our sample firm-years. Moreover, the data that are self-reported by firms (BoardEx) show a greater tendency to report these former employee directors as independent (*I*(*former)*=12%), compared to the ISS database where only 6% of firm-years correspond to cases where a former employee is aggressively reported as independent. The last four rows of Table 4 further summarize how frequently the two databases agree/disagree regarding the classification of former employee directors (see the summary statistics of *GI*(*former)*, *GG*(*former)*, *IG*(*former)*, and *II*(*former)*). In our subsequent analysis we will use these variables along with various measures of board composition to help explain the propensity of a firm to commit fraud.

4 Main Results

4.1. Functioning Board Independence and Corporate Fraud

Our main regression analysis is based on the following probit specification:

$$\Pr(fraud_{i,t}=1) = \Phi\left(\alpha + \beta \cdot Composition_{i,t\text{-}1} + \gamma \cdot X_{i,t\text{-}1} + I_{SIC2} + \delta_t + \varepsilon_{i,t}\right) \qquad \text{Eq. (2)}$$

where $\Phi(.)$ denotes the cumulative distribution function (CDF) of the standard normal distribution. $Composition$ is our main explanatory variable that measures board independence and its subcomponents. X is the vector of firm characteristics that we use as control variables. These variables include *operating profit*, *firm size*, *board size*, *volatility*, and *return* for firm *i* in year *t*. I_{SIC2} and δ_t respectively denote the dummies for two-digit Standard Industrial

[14] It should be noted that the traditional board independence and the overall board grayness measures are already reported in our Table 2.

Classification (SIC2) level industry and year fixed effects. We cluster the standard errors at the firm level.

[Insert Table 5 here]

Table 5 reports our main results. Looking at the first row of Table 5, we first test whether the traditional board independence (*I(%)*), i.e., the percentage of independent directors on the board, explains corporate fraud intensity. We separately report the results using ISS and BoardEx director classification data in this table. We find that while there is a negative association between fraud and the traditional measures of independence, based on both ISS and BoardEx data, the link is statistically insignificant. In many respects, these results are in line with earlier studies (Bhagat and Black (2002), Yermack (1996), and Harris and Raviv (2006), among others), which have failed to find strong convincing links between traditional measures of independence and board effectiveness. In Rows 2 and 3, we account for the percentage of gray directors reported in each of the two major databases. Once again, with the gray directors alone (Row 2) or simply summing up their fraction with the fraction of independent directors on the board (Row 3), we fail to find any significant links between fraud and these alternative board independence measures.

Finally, in the last two rows of Table 5, we test our functioning board independence, *I+G-former (%)* as the relevant measure of board composition. In Row 4, we first show that there is a significantly positive association between the percentage of former employee directors and the likelihood of corporate fraud. This validates our key assumption that former employees tend to tilt towards the interests of incumbent management, and are less likely to police against fraud. When we exclude these internally connected board members, we restore a meaningful relation between functioning overall board independence (*I+G-former (%)*) and the likelihood of corporate fraud at the 1% statistical significance level. This statistically significant effect is also economically meaningful. A 1% *decrease* in the percentage of functioning independence level is associated with 0.2% *increase* in the likelihood of fraud.[15] This finding suggests that a newly

[15] The probit regression marginal effects are estimated at the sample means.

elected former employee director on a board of 10 directors would account for a 2% increase in the fraud likelihood. Given that the average fraud likelihood in our sample is 10%, this 2% increase corresponds to a 20% increase from the sample average likelihood of a firm to be associated with fraud.

4.2. Shades of Gray and Reporting Conservatism

As we described in Section 2, our measure of functioning independence differs from the traditional measure in two important ways. First, incorporating the shades of gray hypothesis, we include gray directors who are not non-former employees. Second, consistent with the reporting conservatism hypothesis, we exclude former employees who are reported as independent directors. To gauge the importance of each effect, we estimate the probit regression in Eq. (2) separately for each component. We run our regressions for both ISS and BoardEx data, while we change our main explanatory variable in the following sequence: *G(non-former)(%)*, *G(consultants)(%)*, *G(consultants with multiple directorships)(%)*, *G(former)(%)*, *and I(former)(%)*.

[Insert Table 6 here]

Table 6 reports the results. First we find a significant reduction in the likelihood of corporate fraud when the board includes gray directors who are supplied from the outside the firm with relevant skills and experience. Estimates using *G(consultants)(%)* and *G(consultants with multiple directorships) (%)* in the BoardEx database are significantly negatively correlated with the corporate fraud dummy at the 5% and 1% levels respectively. In sharp contrast, we find that there is a positive association between the percentage of former employee gray directors and fraud. These results are statistically significant at the 5% level when using the ISS database and at the 10% level using the BoardEx database. Altogether, these findings suggest that the various types of gray directors have differing influences on corporate governance and the likelihood of fraud, lending support to our shades of gray hypothesis.

In the last row of Table 6, we test the reporting conservatism hypothesis. Here we find that when board members agree to aggressively report a former employee director as independent, the company is more likely to commit fraud. The effect is statistically significant at

the 1% level, and it is also economically significant. For example, using the BoardEx data, we find that a 1% *increase* in the percentage of former employee independent director is associated with 0.4% *increase* in the likelihood of fraud (see 0.004 in dF/dX column). This finding suggests that a newly elected former employee independent director on the board of 10 directors (replacing another non-executive director while holding other board compositions the same) would account for a 4% increase in fraud likelihood. Once again, this is a meaningful impact given the average fraud likelihood in our sample is 10%.

4.3 A Closer Look at Firms' Reporting Discretion following the Changing ISS Independent Director Criteria in 2007

We argued in Section 2 that testing for reporting conservatism requires caution when using the ISS database, because the reporting is done by a third-party as opposed to the board itself. At the same time, it is important to recognize that the ISS classification may ultimately give the board more flexibility in assigning directors that are aligned with management because they set the proxy voting guidelines to shareholders. Looking at Table 6, it is notable that the reporting conservatism effects are also supported when using the ISS database. To illustrate that the significant effects of *I(former) (%)* using the ISS database are mainly driven by firms' discretion to fully utilize this flexibility to aggressively report former employees as independent under the loose definition of the proxy agent's independent director criteria, we conduct the following additional analyses. First, we show that when ISS classifies a former employee as gray, yet the board aggressively classifies the director as independent, corporate fraud is more likely than when the board simply agrees with the ISS's director classification. Next, we show when using the ISS database, the significant explanatory power of the *I(former)* variable is driven by the firms that effectively utilize the ISS's more relaxed director independence requirement in the post-2007 period. The details of this shift are described in Appendix B. Most notably, we find that fraud is indeed more likely when a board opportunistically uses the changing ISS director criteria to cosmetically increase their board independence.

Given the timing of the ISS structural break, we focus our tests on the post-2007 time because *I(former)* is significantly more likely in the ISS database following the structural

break.[16] We introduce two additional dummy variables; *GI(former)* corresponds to cases where ISS classifies a former employee as gray, whereas the company more aggressively reports the director as independent. Alternatively, *GG(former)* corresponds to the more conservative case where the firm agrees with the ISS decision to classify a former employee as gray. These results are reported in Table 7. Confirming the negative effects of aggressive classification, Column 1 of Table 7, shows that there is a statistically significant correlation between the *GI(former)* dummy and the probability that a firm commits fraud. By contrast, there are no significant links between *GG(former)* and fraud.

[Insert Table 7 here]

Columns 3 and 4 demonstrate that the changing ISS independent director criteria has important spillover effects regarding a firm's willingness to aggressively classify a director as independent. Specifically, we observe that fraud is more likely when firms follow the ISS's (arguably more relaxed) assessment that the director is independent (Column 4). By contrast, if firms more conservatively classify these directors as gray (*IG(former)*), we find no significant association between ISS former employee independent directors and the corporate fraud likelihood (Column 3).

Put together, our results in Table 7 confirm the effects of a firm's reporting conservatism on corporate fraud in the two major director databases, which is primarily driven by firms' discretion that strategically utilizes the director independence requirements guided by the third party proxy agent, ISS.

5. Conditional Tests: A Deeper Look at the Types of Former Employees on the Board

Our underlying hypotheses are based on the notion that former employee board members are often aligned with current management, which limits their ability to be truly independent. Supporting our hypotheses, we have demonstrated strong evidence that firms with a higher

[16] See Appendix B.2 for more details on the ISS structural break.

percentage of former employee directors are more likely to be associated with fraud, and this association is particularly strong if the firm opts to classify these directors as independent. While these results are convincing, we further examine the factors which particularly exacerbate the negative consequences of former employee directors.

More specifically, we consider the following specific avenues. First, we propose that a former employee director's allegiance to management is heavily influenced by the strength of his/her personal and professional connections both inside and outside the firm. In particular, we believe that former employee directors are less likely to actively monitor the incumbent managers if they share strong connections with the current management team. We further distinguish between connections created within the company itself and social and professional connections established outside of the company, highlighting the role of internal connections that distinctively identify our reported results. Second, we propose that a former employee board member has a particularly influential effect on corporate governance if they are serving on critical committees. Finally, we investigate whether the length of time since the former employee director's retirement influences corporate fraud intensity. Arguably, both their allegiance to management and their willingness to aggressively monitor firm activities may be influenced by the length of time since their retirement. Below, we conduct a series of these conditional tests exploring each of these issues.

5.1 Director Independence and the Strength of Internal and External Connections

To measure the strength of the former employee director's "internal" connections, we introduce two additional dummy variables. The dummy variable, *former(appointed)*, takes a value of one if a director was first elected to his/her board by the current CEO. Another dummy, *former(executive)*, takes a value of one if a former employee director has jointly worked with the current CEO as executive directors in the same firm for at least one year. To contrast the effect of our former employee directors from the external networking effect between the current CEO and other board members, we construct the social network index of each director on the board following Fracassi and Tate (2012).

We then run the following horse-race regressions to gauge the relative influence of these

various internal/external connections:

$$\Pr(fraud_{i,t}=1) = \Phi\left(\begin{matrix}\alpha + \beta \cdot former(Network)_{i,t\text{-}1} + \beta' \cdot former(wio.Network)_{i,t\text{-}1} \\ +\gamma \cdot X_{i,t\text{-}1} + I_{SIC2} + \delta_t + \varepsilon_{i,t}\end{matrix}\right) \quad \text{Eq. (3)}$$

where $former(Network)$ and $former(wio.Network)$ respectively denote the firm-level dummy that takes a value of one if the firm has at least one former employee director who has a specific type of network connections with the incumbent managers. We consider whether or not a former employee was a *CEO*; *appointed* by the current CEO; was an *executive* director; is connected with the current CEO through external networks (either professional, or social, or both). We have applied the same set of control variables, *X*, as in Eq. (2). We also control for SIC2-level industry and year fixed effects and cluster the standard errors at the firm level.

[Insert Table 8 here]

In Column 1 of Table 8, we first find that the lower-ranked former employee directors (*non-CEO*) are more likely to be correlated with fraud activities than former-CEO directors, *former (CEO).* However, the coefficient difference (-0.211 as reported in the *Pairwise Diff* row in the table) is not statistically significant. Given that former CEOs are unlikely to be classified as independent, this result, indirectly demonstrates effects related to reporting conservatism.

In Columns 2 and 3, the coefficient differences for both the *appointed* dummy and the *executive* dummy pairwise regressions are statistically and economically significant. Firms with (without) former employees who have shared appointed or executive internal connections with the current managers face higher (lower) likelihoods of corporate fraud. The existence of the former employee director whose nomination was approved by the current CEO (*appointed*) is associated with a 9% increase in the probability of fraud. Similarly, the existence of a former employee director who had a collegial relationship with the current CEO is associated with 6% increase in the probability of fraud.

In Column 4 of Table 8, we show that external network connections do not seem to drive the cross-section difference in the odds of corporate fraud among the group of firms with former employee directors on board. This lends support to our argument that years of close internal relationships are more likely to make former employee directors compromise their objectivity

than external connections that are developed through various social activities.

5.2 Critical Board Positions of Former Employee Directors

All board positions are not the same. There are certain committees critical for the functionality of the board and more likely to face conflicts of interests with the firm's executives. Here we argue that when former employee directors are placed into roles that arguably should be held by truly independent outsiders, their companies are more likely to engage in fraudulent activities.

[Insert Table 9 here]

To address this possibility, we create three dummy variables. *Audit, Compensation, and Nomination* are dummy variables that respectively indicate whether the company has at least one former employee director serving on these key committees. The results, presented in Table 9, support the argument that corporate governance may be compromised when former employees are serving as key committee members. In Columns 1 and 2, we show that the existence of the former employee director on the audit committee is associated with an 8% increase in the probability of fraud. Similarly, the existence of the former employee director on the compensation committee is associated with a 9% increase in the probability of fraud. We do not find, however, any significant difference when a former employee director serves on the nomination committee. Overall, our results in Table 9 support our predictions that committee assignment of former employee directors on the board could exacerbate their negative corporate governance consequences measured by the increasing propensity of a firm to commit fraud.

5.3 Former Employee Directors and Their Years since Retirements: Entrenched or Inactive?

There are two possible explanations for why former employee directors may have negative effects on the monitoring functions of the board. They may be entrenched with the current management, or they simply hold courtesy positions and lack the monitoring incentives to deter fraudulent activities of the management, or both. As the last step of our conditional tests, we examine the relative extent to which each of the two possible channels could explain our main findings. To this end, we partition former employee directors into two groups according to the number of years since their retirement. Arguably, a recently-retired former employee director

may be more entrenched and aligned with current management. At the same time, board members who retired a long time ago may play a different role than board members who were more recently employed.

Table 10 shows that recently-retired former employee directors are more likely to be associated with negative governance outcomes, although the difference is insignificant. The results, according to the signs of estimated coefficients, support for the entrenchment channel on a relative basis. However, due to the lack in the statistical significance, both channels could be at work jointly.

[Insert Table 10 here]

6. SOX Act and the Identification Strategy

Despite the strong negative correlation between our new measure of functioning board independence, *I+G-former (%)*, and corporate fraud intensity, the results may not be causal. While I+G (%), the percentage of non-executive directors on the board tends to vary little across firms and also over time (see Figure 2), the existence of former employee directors, *former (%)*, may not be random. Arguably, it could be a proxy for bad firm quality, which is unobserved and omitted in our regression specifications. Hence, as a causal experiment, we leverage the exogenous shock during the SOX compliance period (Mid 2002 – Mid 2004) to define an exogenous change in the level of a certain group of former employee directors on the board. Using this variation, we show that former employee directors on the board cause the increasing likelihood of corporate misconduct.[17]

Before the announcement in 2003, NYSE/NASDAQ requires a former employee director to retire more than one year ago to qualify as independent. After 2003, the exchanges changed the rule, and increased the cooling-off period from one to three years. The new rule was initially proposed on August 16, 2002 by NYSE, followed by the NASDAQ on October 9, 2002. The new rule was finally approved by the SEC on November 4, 2003 ("NASD and NYSE

[17] Our causal test results are robust to the use of former employee director dummy (*former*) rather than the percentage of former employees on the board (*former (%)*) as our main endogenous explanatory variable.

Rulemaking: Release No. 34-48745," SEC, November 4, 2003).

A reasonable expectation is that because of these changes, recently retired employees became less desirable board members, and many were replaced by other types of directors with similar qualifications during the period of the SOX compliance. This expected shift is driven by two factors – companies are under pressure for greater board independence, and former employee directors who retired one to three years ago are no longer eligible as independent.

[Insert Figure 3 here]

In Figure 3, we document the bifurcation in the number of former employee directors. The figure shows that following the initial proposal by NYSE/NASDAQ around mid-2002, the number of recently retired former employee directors who have been affiliated as executives of company within the last three years dropped significantly from 58 to 37, between 2001 and 2004, while former employee directors who retired more than four years ago actually stayed at the same level during 2002-2003 and then slightly increased to 82 afterwards and until the end of SOX compliance period in 2004. After 2004, the trends become relatively flat for both groups.[18]

Using this sharp contrast in the variation of the number of the two groups of former employee directors, we divide our sample firms into the treatment and control groups. A firm whose board includes at least one former employee director who retired from the company within the last three years during the treatment period is defined as a treated firm. Other firms are defined as a control group. Although the SEC approved the rule on November 4, 2003, we are cautious about any potential information leakage to the market prior to the rule approval about any changes in NYSE/NASDAQ independent director requirements. Hence, we use the initial proposal date, August 16, 2002, by NYSE as the cutoff between our pre-treatment period and the treatment period. Our full treatment period starts in 2002 onwards until 2004, the year when large public firms had to comply with the SOX requirements. Our pre-treatment period accordingly becomes the years prior to 2002. We first split our cross-section into treatment and control groups using the 2001 year-end snapshot of their board composition. Firms whose board

[18] Outside the SOX compliance period (2002, 2003, 2004), the representation of the two groups of former employee directors on the board shows a parallel trend.

members include executives who have been affiliated with firm within the last three years as of the end of year-2001 are flagged as treated firms. Panel A of Table 11 shows the covariate balancing between our treatment group and control group at the end of 2001 just prior to the treatment. We compare their various firm and board characteristics including monthly stock return *volatility*, *operating profit*, natural logarithm of the book value of a firm's total assets (*firm size*), *leverage* ratio, market capitalization (*market value*), and the reported board independence *I(%)* in BoardEx (i.e., traditional board independence), and finally *board size*. Covariates between treatment and control groups are well-balanced over all these observable characteristics, which helps alleviate potential cross-sectional endogeneity in our controlled experiment (Atanasov and Black (2015)).

[Insert Table 11 here]

In Panel B of Table 11, we show our main two-step instrumental variable (IV) probit regression results. In the first Column 1 of the panel, we use a very narrow window of experiment, namely, one year before and after the proposal of the new NYSE/NASDAQ independent director requirements. In the first stage where we instrument the percentage of former employee directors on the board, *former(%)*, using our *shock* dummy (i.e., the interaction term between treatment group dummy and treatment period dummy), we find a significant reduction in *former(%)*in the treatment group relative to the control group, which is due to the exogenous decrease in the number of former employee directors who recently retired from the firms within the last three years. In the second stage, we show that our instrumented *former(%)* significantly explains the increasing fraud intensity at the 1% statistical significance level. Over-identification test results (*Over-Id P-Value*)[19] as well as significantly high F-statistic confirm that our instruments are valid and do not suffer from any weak instrument problems. Our results in Column 1 suggest a positive causal relation between former employee directors on the board and the corporate fraud intensity.

In the next Column 2 of Panel B, we extend our treatment period beyond 2002 to further

[19] For a single endogenous variable, *former (%)*, we use the treatment group dummy, treatment period dummy, and the interaction between them as instruments.

capture any staggered treatment effects. There we include 2003 and 2004 as additional treatment period, while we fix the cross-section of our treated firms. As expected, our results become even stronger. With these extended treatment periods, however, one could argue that we include former employee directors who retired within the last three years from firm as of year 2001 but later become eligible to be classified as independent due to the time passage. We, therefore, dynamically adjust our treated group according to these time passage effects. For example, as treated firms in 2003, we consider only the firms whose board members include former employees who retire the firms in 2000 and 2001. We similarly made an adjustment on our treatment group in 2004 using only the directors who retired the firms in 2001. Results are reported in Column 3 of Panel B. Our results are virtually unaffected by this adjustment.

Lastly in Column 4 of Panel B, we extend our experimental window to the fullest extent, including year 2000 as our pre-treatment period, while we still use the dynamically adjusted treatment group as defined in Column 3. We find that our results are robust to this full expansion of our experiment window. Overall, our results in Table 11 provide strong support for a causal relation between former employee directors and the overall board's loose oversight of incumbent managers.

7. Additional Evidence of Loose Oversight by Boards with Former Employee Directors: CEO Turnover

Although we have shown that the internal connections between former employees and the incumbent CEO within a board result in increasing corporate fraud, such evidence may not suffice to show the tight link between former employee directors and the significantly weakened board oversight of incumbent managers. Another area in which board monitoring plays a key role is the decision on whether to fire a poorly performing CEO (Yermack (1996), Huson, Parrino and Starks (2001), Hwang and Kim (2009), Kaplan and Minton (2012), Jenter and Kanaan (2015)). To provide additional evidence of loose oversight of a board with a former

employee director, we further demonstrate that the sensitivity of CEO turnover to firm performance is also significantly weakened when a former employee serves on the board.

We mainly focus on forced CEO turnovers in the S&P 500 universe in the Execucomp database. We run a standard CEO turnover probit regression using past 3-year buy-and-hold returns, both normal (*BNH3*) and abnormal (*ABBNH3*), as our performance metrics. Results are reported in Table 12.

[Insert Table 12 here]

In the first two Columns 1 and 2 of Table 12, we show that the existence of former employee director is negatively related with CEO turnover. In the next Columns 3 and 4 of the same table, we introduce the interaction terms between *former* dummy and our two performance metrics, *BNH3* and *ABBNH3*. There we find positive point estimates for both interaction terms. The results indicate a significantly decreasing performance sensitivity of CEO dismissal when a former employee director serves on the board.

This additional set of results further confirms that there are negative corporate governance consequences when former employees are present on the board. Their presence significantly weakens the intensity of board monitoring on incumbent managers as evidenced by both the reduced likelihood and the performance-sensitivity of CEO turnover. These additional results are in line with those we obtained from our earlier analyses on corporate fraud.

8. Robustness Tests

In this section, we show that our results are robust to alternative regression specifications, dependent variables, controls, and alternative governance measures. The corresponding results from these various robustness tests are summarized in Table 13.

[Insert Table 13 here]

First, we show in Column 1 of Panel A of Table 13 that our results are robust to the use of logit specification. Next, we re-estimate our main regression results using alternative definitions of corporate fraud. In Column 2, we first re-run our baseline probit regression as

specified in Eq. (2) of our main text using *Settled* fraud dummy, which equals one if the company was associated with class action suits that are already settled as of Jan 2016. In Column 3, we introduce a more broadly defined fraud dummy (*SCAC* + *AAER*), which takes of a value of one if the company was sued by private investors (SCAC) *or* faced enforced actions initiated by SEC (AAER). Our results are robust to the use of these two alternative corporate fraud variables. In the remaining Columns 4 and 5 of the same Panel A, we further show the robustness of our baseline results to the use of some alternative control variables. There we use a 3-year average *operating profit* and *roa* as alternative firm-level performance measures rather than the lagged 1-year *operating profit*. We also use the 3-year *buy-and-hold return*, instead of using the yearly average stock return. In those two Columns 4 and 5 of Panel A of Table 13, we confirm that our main results carry through.

Finally, we address the concern that the existence of former employee directors is simply the outcome of a bad external governance structure. Companies with weak external governance system could be weak firms that are more likely to hire former employee directors. If true, the external governance failure is the underlying factor that drives the increased propensity to commit fraud. To address this concern, we show in Columns 1 and 2 of Panel B of Table 13, that there is no apparent link between the presence of former employee directors and any of the widely used external governance proxies including the G-*Index* and its various sub-index components. The results from the two columns also demonstrate that these results are robust to different time periods (before and after the 2007 structural break in the ISS database). Likewise, in Columns 3 and 4 for the same corresponding time periods we also demonstrate that our main link between fraud and our measure of functional independence is robust to also including these alternative governance measures as additional control variables.

9. Conclusion

In this paper, we show that a true measure of board independence requires a careful disentangling of both the functioning role of gray directors and the firm's decision on whether to

classify former employees as independent or gray. By reclassifying the gray directors, we find that the likelihood of fraud significantly increases when a firm has former employees serving on its board of directors. These effects are particularly strong when these former employee directors have previously served with the current CEO as an executive director, or when they assume important monitoring responsibilities by serving on the auditing and compensation committees. By contrast, we find that other "outside" gray directors, who are not former employees, are less associated with fraud. These effects are particularly strong when the outside gray directors include consultants who are particularly concerned about maintaining their external reputations.

In this regard, we clearly demonstrate that gray directors are not a monolithic group, and that there are important "shades of gray" within this group. Given this perspective, we construct a novel measure of a board's functioning independence that differs from traditional measures of independence in two important ways. First, we exclude former employees who are classified as independent. Second, we include all gray directors who are not former employees. In a broad series of empirical tests, we demonstrate that while there is no significant link between the traditional measure of independence and corporate fraud, there is a strong statistical and economically significant negative link between our measure of functional independence and the likelihood of fraud.

Apart from a careful disentangling of the role played by various board members, we also demonstrate that there is an association between how a board chooses to classify its former employee directors and the incidence of fraud. Most notably, fraud is increasingly more likely to occur when the firm uses its discretion to classify a former employee as an independent director. We contend that firms that aggressively choose to classify these directors as independent are providing a window into the firm's tendency to be either conservative or aggressive – which is correlated with its tendency to be involved in fraudulent activities. In this respect, our analysis provides deeper insights into how firms vary in terms of their true desire for functioning independence.

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Appendix A. Variable Definitions

Variable Name	Definition
Dependent variable	
fraud	Dummy variable that equals one if a firm in year t falls in the lagged class action lawsuit period (i.e., the period between class action start and end dates).
Firm financials	
BNH	Buy-and-hold return in year t.
BNH3	Cumulative buy-and-hold return in past three years (year t-2 to year t).
ABBNH3	Cumulative buy-and-hold return in past three years (year t-2 to year t) adjusted for the value-weighted CRSP return during the same period
leverage	Ratio of the book value of long term debt (DLTT) to the book value of a firm's total assets (AT).
market value	Natural logarithm of the common shares outstanding (CSHO) times the share price (PRCC_C).
operating profit	Ratio of the earnings before interests and taxes (EBIT) to the book value of a firm's total assets (AT).
operating profit3	Trailing three-year average of the earnings before interests and taxes (EBIT) to the book value of a firm's total assets (AT).
return	Average monthly return in year t.
roa	Ratio of the operating income before depreciation (OIBDP) to the book value of a firm's total assets (AT).
roa3	Trailing three-year average of the operating income before depreciation (OIBDP) to the book value of a firm's total assets (AT).
size	Natural logarithm of the book value of a firm's total assets (AT).
volatility	Standard deviation of monthly stock returns in year t.
Board characteristics	
board size	Total number of directors on the board.
CEO turnover	Dummy variable that equals one if the CEO is dismissed for reasons other than "RETIRED" in the Execucomp database
CEO_Chairman	Dummy variable that equals one if the CEO also serves as Chairman of the board
CEO_tenure	The number of years that the CEO has served in the firm (including both CEO and non-CEO positions)

former	Dummy variable that equals one if a firm has at least one former employee director on the board.
former (%)	The percentage of former employee director(s) on the board.
former(CEO)	Dummy variable that equals one if a firm has at least one former CEO on the board.
former(non-CEO)	Dummy variable that equals one if a firm has only non-CEO former employee directors on the board.
former(appointed)	Dummy variable that equals one if a firm has at least one former employee who was elected to the board when the current CEO was already a board member.
former(non-appointed)	Dummy variable that equals one if a firm has only former employee director(s) who were elected after the current CEO served the board.
former(executive)	Dummy variable that equals one if a firm has at least one former employee director who has previously worked with the current CEO on the board as executive directors.
former(non-executive)	Dummy variable that equals one if a firm has only former employee director(s) who has never worked with the current CEO on the board as executive directors.
former(connected)	Dummy variable that equals one if a firm has at least one former employee director with a social connection to the CEO. Social connections are established through external institutions.
former(non-connected)	Dummy variable that equals one if a firm has only former employee director(s) with no social connections to the CEO. Social connections are established through external institutions.
former(audit)	Dummy variable that equals one if a firm has at least one former employee director serving on the audit committee.
former(no-audit)	Dummy variable that equals one if a firm has no former employee director(s) on the audit committee.
former(compensation)	Dummy variable that equals one if a firm has at least one former employee serving on the compensation committee.
former(no-compensation)	Dummy variable that equals one if a firm has no former employee director(s) on the compensation committee.
former(nomination)	Dummy variable that equals one if a firm has at least one former employee serving on the nomination committee.
former(no-nomination)	Dummy variable that equals one if a firm has no former employee director(s) on the nomination committee.
G(former) (%)	The percentage of gray/affiliated former employee director(s) on the board.
G(non-former) (%)	The percentage of gray/affiliated director(s) on the board who is (are) not former employee(s) of the firm.

G(consultants) (%)	The percentage of gray/affiliated director(s) serving as the external consultant(s) on the board.
G(consultants with multiple directorships) (%)	The percentage of gray/affiliated director(s) serving as the external consultant(s) on the board. The director(s) must also serve on more than 3 other public boards (historically and concurrently).
GG (former)	Dummy variable that equals one if a firm has at least one former employee director identified as gray/affiliated by both ISS and BoardEx.
GI (former)	Dummy variable that equals one if a firm has at least one former employee director identified as independent by BoardEx but gray/affiliated by ISS.
I(former) (%)	The percentage of independent former employee director(s) on the board.
IG (former)	Dummy variable that equals one if a firm has at least one former employee director identified as independent by ISS but gray/affiliated by BoardEx.
II (former)	Dummy variable that equals one if a firm has at least one former employee director identified as independent by both ISS and BoardEx.

Appendix B. Director Independence Standards: The Case of Former Employee Directors

In this appendix, we explain major changes in independent director criteria in the cases of former employees due to the 2002 SARBANES–OXLEY ACT (SOX) (Section B.1) as well as the ISS structural break in 2007 when RiskMetrics Group (RiskMetrics hereafter) acquired the ISS (when it was formerly named IRRC) and updated their independent director standards (Section B.2). We further provide anecdotal evidence on several cases where firms endogenously classify their former employee directors to be independent.

B.1. Independent Director Standards Before and After the SOX

SOX was enacted on July 30, 2002. The Act's broad objective was to improve corporate governance, and it specifically focuses on increasing the overall independence of corporate boards by regulating the composition of the critical audit committee. Following the passage of SOX, self-regulatory organizations such as the New York Stock Exchange, Inc. (NYSE) and the National Association of Securities Dealers, Inc. (NASD) contemporaneously proposed a rule change to strengthen corporate governance practices of their listed companies ("NASD and NYSE Rulemaking: Release No. 34-48745," Securities Exchange Commission (SEC), November 4, 2003). For example, on August 16, 2002 and October 9, 2002, NYSE and NASD (through its subsidiary, the NASDAQ Stock Market, Inc.) respectively proposed corporate governance listing standards that went beyond the SOX provisions regarding the structure of audit committees. These standards require that boards have a majority of independent directors (NYSE Section 303A(1) and NASD Rule 4350(c)(1)). During this amendment process, they also revised their definitions of an independent director. Particularly relevant for our paper, NASD Rule 4200(a)(15), stipulated that a director who had been employed by the company within the past three years by any parent or subsidiary of the company, would not quality as independent ("NASDAQ Employee Provision"). Similarly, "NYSE Employee Provision" introduces the same three-year "cooling-off" period as a part of their new independent director requirements.

Before their new proposals, the "cooling-off" period had been just one year. The SEC approved these proposals on Tuesday, November 4, 2003.

B.2. Independent Director Standards Before and After the 2007 ISS Structural Break

ISS (when it was formerly named IRRC) was acquired by RiskMetrics Group in 2007, and they updated their independence director standards following the acquisition. Since 2007, ISS benchmark policy ("United States: Summary Proxy Voting Guidelines 2016 Benchmark Policy Recommendations," February 1, 2016) has a five-year "cooling-off" policy for former executive officers of the company, an affiliate, or an acquired firm, with the exception of former CEOs. Due to their influence on the board and management, ISS considers former CEOs as always affiliated (i.e., gray) with the company they previously headed.

However, prior to the 2007 structural break, ISS had imposed a much stricter policy that none of former employees of the company or its affiliates including subsidiaries, sibling companies, or parent companies, could be classified as independent, i.e., the infinite look-back or cooling-off period (see "ISS Updates Proxy Voting Policies Effective February 1," February 1, 2004 as well as "Overview of IRRC Directors in WRDS").[1] As a result of the structural break in director classifications, the average percentage of independent directors in our ISS sample increased from 74.4% to 79.9% between 2006 to 2007, while at the same time the average percentage of gray/affiliated directors dropped from 10.2% to 4.9% (which also explains the sharp decrease from 359 to 144 gray/affiliated directors in our sample from 2006 to 2007). Specifically regarding the classification of former employee directors, 32 directors were reclassified all at once from gray/affiliated to independent from 2006 to 2007, which is a dramatic increase from the average level of reclassifications at other years (three former employee directors reclassified from gray to independent from 2005 to 2006, and four from 2004 to 2005).

[1] We further confirm with ISS on this infinite cooling-off period prior to 2007 via separate email communications.

B.3. Anecdotal Evidence on Endogenous Director Classifications: The Cases of Former Employee Directors

The following episodes summarize various cases where firms with discretion endogenously classify their former employee directors to be independent. Some of the cases coincide with the 2007 change in the "cooling-off" period for former employee independent directors in the ISS database.

Inconsistent Director Classification Across Databases: One example relating to the inconsistent director classifications across databases is Mr. Robert Burgess, who was the CEO of Macromedia, Inc., a provider of internet and multimedia software. He held the position as CEO from November 1996 to January 2005 until Adobe System acquired the firm. Mr. Burgess immediately joined the board of Adobe following the acquisition in 2005. On the company's official website, he was reported as independent. [2] In WSJ, the director is identified as independent as well. However, proxy agency including ISS has identified him as affiliated/gray because of concerns related to his previous employment history with the company's newly created subsidiary. Some institutional investors had similar sentiments and voted against the re-election of Mr. Robert Burgess as ab independent director.[3] In our database, Mr. Robert Burgess is an example of the directors reported as independent by BoardEx and identified as gray by ISS.

Similarly, Mr. John C. Miles II is reported as an independent director by the firm, Dentsply International Inc., but identified as gray/affiliated by ISS. He served as CEO of the firm from 1996 to 2004, and then was the Chairman of the board from May 1998 until May 2005. Institutional investors advised by the proxy agencies such as ISS have voted against Mr. Miles on the basis of "aggressive reporting" by the firm.[4]

[2] Detailed board descriptions on http://www.adobe.com/leaders/board-directors.html.
[3] A sample proxy voting statement related to this matter is available on https://www.triodos.com/downloads/investment-management/research/proxy-voting-downloads/2013/adobe-agm.pdf.
[4] A sample proxy voting statement related to this matter is available on https://www.triodos.com/downloads/investment-management/research/proxy-voting-downloads/2016/dentsply-international-egm-2016.pdf.

Director Classification affected by the ISS Structural Break: 32 former employee directors in our sample are affected by the ISS structural break, and thus dynamically reclassified from gray/affiliated to independent from 2006 to 2007. One of the relevant cases is Mr. Richard A. Hackborn who served on Hewlett-Packard's (HP) board. He was a former employee who built HP's lucrative printer business in the 1980s. He joined HP as Vice President of Printing in 1979, and later became the Executive Vice President of Computer Products from 1990 to 1993. He joined the board of HP at 1992, and assumed the role of Chairman in 2000.[5] He stayed on the board until 2009, but his classification in ISS was reclassified from gray/affiliated in 2006 (*ISS legacy database*) to independent in 2007 (*ISS database*). However, despite the passive switch in the ISS classification, we are not able to identify any fundamental improvements in the former employee's ability, monitoring incentives and entrenchments with the current management during the structural break.

Dynamic Director Re-classification by a Firm: NYSE and NASDAQ imposed the three-year "cooling off" period in an attempt to more properly classify former employee directors. This shift may induce dynamic director reclassifications by firms looking to window-dress their board independence to meet the new regulatory rules. One apparent such cases is Mr. Robert Bennett at Discovery Communications. Mr. Robert Bennett was one of the founding executives of Liberty Media and served as its Principal Financial Officer from its inception in 1991 until 1997. After that, he served as the president of Liberty Media Corporate from 1997 to 2006. In 2005, Discovery Communications was spun off from Liberty Media, and Mr. Bennett served as President of Discovery Communications from 2005 to 2008. After he left his executive position in 2008, he served as an affiliated/gray director on Discovery's board up until 2011. Since 2011, his classification has been switched to independent director. The reclassification is consistently with the three-year look back period enforced by NYSE and NASDAQ. Detailed board classification is available at BoardEx and Bloomberg.[6] CtW Investment has raised concerns on the reclassified independence of Mr. Robert Bennett, citing the extensive collegial relationships

[5] Director profile is available at Capital IQ, and NNDB.com.
[6] See http://www.bloomberg.com/research/stocks/private/person.asp?personId=207011&privcapId=316516.

that he has built with other board insiders, particularly with those who had worked at Liberty Media and Discovery Communications.[7]

[7] See http://ctwinvestmentgroup.com/wp-content/uploads/2016/04/CtW-to-Discovery-SH-letter-_4.21.16.pdf.

Table 1. Summary Statistics and Number of Fraud Lawsuits Filed

This table summarizes sample statistics. In Panel A, we report the mean values of all the firm level control variables used in our regressions. The *operating profit3 and ROA3* are the three-year average of *operating profit* and *return on assets*. *BNH3* is the *buy-and-hold return* during the past three years (year t-2 to t). In Panel B, we show the number of corporate fraud litigations filed against our sample firms (Actions Filed). The *Firm-Years in the Class Action Periods* counts the number of firm-years that actually fall into the class action periods of each filed case. Settlement statuses are measured as of as of January 2016. See more detailed definitions of variables in Appendix A.

Panel A	#	Size	Operating Profit	Operating Profit3	ROA	ROA3	BNH	BNH3	Volatility
2000	385	8.849	0.085	0.112	0.063	0.059	0.217	0.765	0.144
2001	325	8.932	0.095	0.101	0.013	0.041	0.081	0.427	0.122
2002	315	9.054	0.085	0.093	0.017	0.031	-0.146	0.084	0.115
2003	326	9.110	0.072	0.091	0.047	0.030	0.416	0.359	0.087
2004	332	9.204	0.066	0.095	0.060	0.046	0.199	0.464	0.068
2005	334	9.214	0.071	0.105	0.072	0.061	0.129	1.018	0.066
2006	347	9.352	0.074	0.113	0.070	0.068	0.169	0.655	0.065
2007	288	9.241	0.080	0.121	0.066	0.074	0.100	0.537	0.069
2008	354	9.421	0.074	0.110	0.037	0.057	-0.372	-0.185	0.128
2009	355	9.453	0.069	0.105	0.044	0.053	0.459	-0.019	0.129
2010	352	9.576	0.063	0.104	0.066	0.052	0.222	0.079	0.086
2011	353	9.658	0.067	0.106	0.066	0.061	0.007	0.799	0.082
2012	353	9.756	0.074	0.112	0.060	0.065	0.148	0.438	0.068

Panel B	Actions Filed	Firm-Years in the Class Action Periods				
		All	Settled	Dismissed	Ongoing	Unidentified
2000	2	71	39	29	1	2
2001	15	53	25	27	0	1
2002	42	42	22	20	0	0
2003	20	37	16	19	0	2
2004	19	32	12	18	0	2
2005	18	33	19	13	1	0
2006	15	38	21	15	2	0
2007	18	30	18	11	1	0
2008	30	24	14	7	3	0
2009	15	26	11	8	7	0
2010	22	20	7	5	8	0
2011	12	18	2	8	8	0
2012	15	14	1	5	8	0
Total	243	438	207	185	39	7

Table 2. Board Compositions: ISS vs. BoardEx during 2000-2012

This table shows board snapshots taken in each year for our sample S&P 500 firms and their directors during 2000-2012 time period. The table summarizes both of the two major director databases, ISS and BoardEx. Panel A shows the total number of S&P 500 firms/directors matched between ISS and BoardEx. Among the matched directors in the matched firms, we report the average board size, independence (*I*) and grayness (*G*) across two databases by year (where the denominator is the matched board size). Panel B shows the classification inconsistencies (in the number of director-firm-year observations and the % of total director-firm-year observations of the matched sample) in the off-diagonal cells.

Panel A	# of Firms	# of Firms with G		Average Board Size			ISS			BoardEx		
		ISS	BoardEx	ISS	BoardEx	Matched	E	I	G	E	I	G
2000	385	259	342	10.80	11.29	9.36	20.5%	64.9%	14.6%	19.5%	55.50%	25.2%
2001	325	205	263	10.65	11.08	9.17	21.0%	65.6%	13.4%	20.2%	59.70%	20.0%
2002	315	200	214	10.77	11.05	9.30	18.6%	68.9%	12.6%	18.3%	68.10%	13.6%
2003	326	188	161	10.63	11.00	9.16	17.4%	71.5%	11.0%	17.0%	74.80%	8.2%
2004	332	191	142	10.53	10.89	9.13	16.1%	73.1%	10.8%	15.8%	77.60%	6.7%
2005	334	181	141	10.47	10.82	8.95	15.2%	74.6%	10.2%	15.0%	78.50%	6.6%
2006	347	192	148	10.59	10.86	9.22	15.2%	74.4%	10.2%	14.9%	78.70%	6.6%
00-06	337.71	202.29	201.57	10.64	11.00	9.19	17.7%	70.4%	11.9%	17.3%	70.1%	12.6%
2007	288	97	111	10.36	10.79	8.92	15.2%	79.9%	4.9%	14.9%	78.90%	6.1%
2008	354	123	140	10.77	11.01	9.21	14.6%	80.6%	4.7%	14.3%	79.70%	6.0%
2009	355	126	153	10.75	11.02	9.23	14.4%	80.9%	4.7%	13.7%	79.90%	6.4%
2010	352	120	145	10.79	10.94	9.35	14.0%	81.5%	4.6%	13.4%	80.50%	6.1%
2011	353	108	150	10.78	10.99	9.44	14.0%	81.9%	4.1%	13.2%	80.60%	6.2%
2012	353	106	158	10.84	11.09	9.41	14.2%	81.8%	4.0%	13.5%	80.20%	6.3%
07-12	342.50	113.33	142.83	10.73	10.98	9.27	14.4%	81.1%	4.5%	13.8%	80.0%	6.2%
All	339.92	161.23	174.46	10.68	10.99	9.23	16.2%	75.4%	8.5%	15.7%	74.7%	9.6%

Panel B	BoardEx: I	BoardEx: G	BoardEx: E		BoardEx: I	BoardEx: G	BoardEx: E
00-06							
ISS: I	14541	1565	21	ISS: I	63.62%	6.85%	0.09%
ISS: G	1486	1156	59	ISS: G	6.50%	5.06%	0.26%
ISS: E	17	190	3820	ISS: E	0.07%	0.83%	16.71%
07-12							
ISS: I	15562	489	13	ISS: I	78.63%	2.47%	0.06%
ISS: G	302	627	19	ISS: G	1.53%	3.17%	0.10%
ISS: E	12	129	2637	ISS: E	0.07%	0.65%	13.32%
00-12							
ISS: I	30103	2054	34	ISS: I	70.59%	4.82%	0.08%
ISS: G	1788	1783	78	ISS: G	4.19%	4.18%	0.18%
ISS: E	29	319	6457	ISS: E	0.07%	0.75%	15.14%

Table 3. Gray Director Types: Insiders vs. Outsiders

This table reports various types of gray directors on the board in each of the two major director databases, ISS (Panel A) and BoardEx (Panel B). We divide all gray directors according to their previous employment histories. We classify all the former employee directors as internally-connected gray directors (*Internally-Connected*), and the consulting professionals, business partners, and others as externally-connected gray directors (*Externally-Connected*). Each panel reports the yearly breakdowns of these different types of gray directors. Please note that former employee *gray* directors reported in this table are a part of the whole former employee directors we have manually identified. The whole group includes former employee *independent* directors as well, but not reported in this table.

Panel A: ISS		Internally-Connected		By Previous Titles		Externally-Connected					
	Total	Former	%	CEOs	Non-CEOs	Consulting	%	Business	%	Other	%
2000	541	140	25.88%	72	68	211	39.00%	70	12.94%	120	22.2%
2001	397	116	29.22%	58	58	177	44.58%	37	9.32%	67	16.9%
2002	389	101	25.96%	49	52	167	42.93%	48	12.34%	73	18.8%
2003	351	104	29.63%	53	51	129	36.75%	49	13.96%	69	19.7%
2004	340	110	32.35%	59	51	106	31.18%	53	15.59%	71	20.9%
2005	324	110	33.95%	62	48	85	26.23%	69	21.30%	60	18.5%
2006	359	107	29.81%	60	47	85	23.68%	75	20.89%	92	25.6%
00-06*	2701	788	29.17%	413	375	960	35.54%	401	14.85%	552	20.4%
2007	144	47	32.64%	34	13	33	22.92%	6	4.17%	58	40.3%
2008	176	65	36.93%	45	20	32	18.18%	12	6.82%	67	38.1%
2009	170	70	41.18%	44	26	43	25.29%	16	9.41%	41	24.1%
2010	168	66	39.29%	43	23	50	29.76%	10	5.95%	42	25.0%
2011	147	63	42.86%	45	18	46	31.29%	7	4.76%	31	21.1%
2012	143	62	43.36%	42	20	42	29.37%	10	6.99%	29	20.3%
07-12	948	373	39.35%	253	120	246	25.95%	61	6.43%	268	28.3%
All Years	3649	1161	31.82%	666	495	1206	33.05%	462	12.66%	820	22.5%

***** ISS changed its director classification criteria regarding former employees, consulting and business relationships in 2007

Panel B: BoardEx		Internally-Connected		By Previous Titles				Externally-Connected			
	Total	Former	%	CEOs	Non-CEOs	Consulting	%	Business	%	Other	%
2000	967	95	9.82%	61	34	106	10.96%	33	3.41%	733	75.80%
2001	625	76	12.16%	46	30	78	12.48%	16	2.56%	455	72.80%
2002	432	63	14.58%	37	26	65	15.05%	19	4.40%	285	65.97%
2003	258	62	24.03%	38	24	44	17.05%	14	5.43%	138	53.49%
2004	214	67	31.31%	44	23	41	19.16%	20	9.35%	86	40.19%
2005	203	68	33.50%	44	24	35	17.24%	17	8.37%	83	40.89%
2006	212	60	28.30%	39	21	39	18.40%	18	8.49%	95	44.81%
2007	177	43	24.29%	31	12	19	10.73%	5	2.82%	110	62.15%
2008	216	58	26.85%	38	20	18	8.33%	6	2.78%	134	62.04%
2009	219	61	27.85%	37	24	16	7.31%	11	5.02%	131	59.82%
2010	212	54	25.47%	35	19	26	12.26%	9	4.25%	123	58.02%
2011	209	52	24.88%	34	18	23	11.00%	6	2.87%	128	61.24%
2012	212	49	23.11%	30	19	23	10.85%	11	5.19%	129	60.85%
All Years	4156	808	19.44%	514	294	533	12.82%	185	4.45%	2630	63.28%

Table 4. Firm Level Descriptive Statistics on Board Composition and Fraud Likelihood

This table reports the firm-level summary statistics of our main dependent variable, *fraud* dummy, as well as several additional board composition variables that are related to the former employee directors. It should be noted that the traditional board independence and the overall board grayness measures are reported in the previous Table 2. We only report the additional board characteristics here. All the firm-level variables in this table are dummy variables unless denoted in parenthesis with (%). We provide the detailed definitions of these variables in Appendix A.

Variable	Obs	Mean	Std. Dev.	Min	Max
fraud	4419	0.10	0.30	0.00	1.00
former	4419	0.27	0.44	0.00	1.00
former (%)	4419	3.57	6.65	0.00	50.00
former(audit)	4419	0.06	0.24	0.00	1.00
former(compensation)	4419	0.03	0.18	0.00	1.00
former(nomination)	4419	0.05	0.21	0.00	1.00
I(former) (BoardEx)	4419	0.12	0.33	0.00	1.00
I(former) (ISS)	4419	0.06	0.24	0.00	1.00
G(former)(BoardEx)	4419	0.16	0.37	0.00	1.00
G(former) (ISS)	4419	0.22	0.42	0.00	1.00
GI(former)	2055	0.04	0.20	0.00	1.00
GG(former)	2055	0.13	0.33	0.00	1.00
IG(former)	2055	0.02	0.13	0.00	1.00
II(former)	2055	0.09	0.28	0.00	1.00

Table 5. In Search of Functioning Board Independence

In the following table, we explore the best independence measure by regressing the *fraud* dummy on various board composition variables: *I(%)*, *G(%)*, *I+G(%)*, *former(%)*, and *I+G-former(%)*. We follow the probit regression specification as in Eq. (2) of our main text. In each row, we report the regression coefficient on one of these variables of interests. Control variables include stock price *volatility*, annual *stock return*, *board size*, *firm size*, and *operating profit*. Detailed definitions of these variables are provided in Appendix A. *Z* statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	ISS			BoardEx			Control	Year	Industry	Cluster	N
Explanatory Variables	est.	dF/dX	Pseudo R^2	est.	dF/dX	Pseudo R^2		FE	FE		
I (%)	-0.005	-0.0007	15.40%	-0.003	-0.0005	15.29%	Yes	Yes	Yes	Firm	4017
	(-1.63)	(-1.61)		(-1.13)	(-1.13)						
G (%)	0.004	0.0006	15.29%	0.000	0.0000	15.21%	Yes	Yes	Yes	Firm	4017
	(1.16)	(1.15)		(0.06)	(0.06)						
I+G (%)	-0.005	-0.0007	15.30%	-0.007	-0.001	15.38%	Yes	Yes	Yes	Firm	4017
	(-1.09)	(-1.08)		(-1.56)	(-1.55)						
former (%)	0.02***	0.003***	15.98%	0.02***	0.003***	15.98%	Yes	Yes	Yes	Firm	4017
	(3.36)	(3.39)		(3.36)	(3.39)						
I+G-former (%)	-0.01***	-0.002***	15.80%	-0.01***	-0.002***	16.02%	Yes	Yes	Yes	Firm	4017
	(-2.60)	(-2.61)		(-3.21)	(-3.19)						

Table 6. Shades of Gray and Reporting Conservatism

In the following table, we explore the difference between traditional and functional independence level by regressing the *fraud* dummy on *G(non-former) (%)*, *G(consultants) (%)*, *G(consultants with multiple directorships) (%)*, *G(former) (%)*, and *I(former) (%)*, respectively. We follow the probit regression specification as in Eq. (2) of our main text. The first four explanatory variables are for the test on the existence of the shades of gray directors, whereas the last for the reporting conservatism. In each row, we report the regression coefficient on one of these variables. Control variables include stock price *volatility*, annual *stock return*, *board size*, *firm size*, and *operating profit*. Detailed definitions of the variables are available in Appendix A. *Z* statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	ISS			BoardEx			Control	Year	Industry	Cluster	N
Explanatory Variables	est.	dF/dX	Pseudo R^2	est.	dF/dX	Pseudo R^2		FE	FE		
G(non-former) (%)	0.000	0.0001	15.21%	-0.004	-0.0005	15.26%	Yes	Yes	Yes	Firm	4017
	(0.19)	(0.19)		(-1.05)	(-1.00)						
G(consultants) (%)	-0.003	-0.0005	15.22%	-0.02**	-0.003**	15.38%	Yes	Yes	Yes	Firm	4017
	(-0.45)	(-0.45)		(-1.97)	(-1.97)						
G(consultants with multiple directorships) (%)	-0.02	-0.003	15.33%	-0.05***	-0.007***	15.53%	Yes	Yes	Yes	Firm	4017
	(-1.61)	(-1.59)		(-3.03)	(-2.93)						
G(former) (%)	0.01**	0.002**	15.46%	0.01*	0.002*	15.47%	Yes	Yes	Yes	Firm	4017
	(1.96)	(1.96)		(1.78)	(1.78)						
I(former) (%)	0.05***	0.007***	16.19%	0.02***	0.004***	15.73%	Yes	Yes	Yes	Firm	4017
	(4.26)	(4.40)		(2.83)	(2.85)						

Table 7. Firms' Reporting Discretion following the Changing ISS Independent Director Criteria in 2007

In the following table, we regress the *fraud* dummy on the existence of *GI* and *IG* directors from 2007 to 2012. We follow the probit regression specification as in Eq. (2) of our main text. We further break down the former employee gray directors (ISS) into *GI (former)* and *GG (former)*, and break down the former employee independent directors (ISS) into *IG(former)* and *II(former)*. Detailed variable definitions are available in Appendix A. Control variables include monthly stock price *volatility*, annual *stock return*, *board size*, *firm size*, and *operating profit*. *Z* statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1) fraud 07-12		(2) fraud 07-12		(3) fraud 07-12		(4) fraud 07-12	
	est.	dF/dX	est.	dF/dX	est.	dF/dX	est.	dF/dX
GI (former)	0.40*	0.04*						
	(1.88)	（1.88）						
GG(former)			-0.10	-0.01				
			(-0.58)	(-0.57)				
IG (former)					0.27	0.03		
					(0.56)	(0.56)		
II(former)							0.37**	0.04**
							(2.17)	(2.19)
Control Variables	YES		YES		YES		YES	
Industry/Year FE	YES		YES		YES		YES	
Cluster by Firm	YES		YES		YES		YES	
Pseudo R^2	13.67%		13.35%		13.36%		13.92%	
N	1660		1660		1660		1660	

Table 8. Former Employees and their Internal Networks

In the following table, *Appointed* dummy equals one if the former employee director was elected to the board when the current CEO was already a board member. *Executive* dummy takes a value of one if the former employee director previously worked with the current CEO in the same firm as executive directors for at least one year. The dummy variable, *former (CEO)*, equals one if a firm has a former CEO on the board, whereas *former(non-CEO)* equals one if a firm has *ONLY* non-CEO former employee directors on the board. A former employee director is defined to be a former CEO, if he/she retired from positions such as the CEO, CEO of merged firm, and/or President. *Former(appointed)* equals one if a firm has at least one former employee director whose *Appointed* dummy takes a value of one. *Former(executive)* equals one if a firm has at least one former employee director whose *Executive* dummy takes a value of one. *Former(connected)* equals one if the company has at least one former employee director who are socially connected to the CEO through external connections. Detailed definitions of these variables are further provided in Appendix A. Control variables include monthly stock price *volatility*, annual *stock return*, *board size*, *firm size*, and *operating profit*. *Z* statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)		(2)		(3)		(4)	
	fraud		fraud		fraud		fraud	
	est.	dF/dX	est.	dF/dX	est.	dF/dX	est.	dF/dX
former (CEO)	0.196*	0.03*						
	(1.69)	(1.69)						
former(non-CEO)	0.407***	0.06***						
	(3.81)	(3.89)						
former(appointed)			0.606***	0.09***				
			(4.95)	(4.96)				
former(non-appointed)			0.098	0.01				
			(0.94)	(0.94)				
former(executive)					0.443***	0.06***		
					(3.55)	(3.58)		
former(non-executive)					0.192*	0.03**		
					(1.95)	(1.96)		
former(connected)							0.070	0.01
							(0.44)	(0.44)
former(non-connected)							0.336***	0.05***
							(3.61)	(3.65)
Pairwise Diff	-0.211		0.508***		0.251*		-0.266	
Control Variables	YES		YES		YES		YES	
Industry/Year FE	YES		YES		YES		YES	
Cluster by Firm	YES		YES		YES		YES	
Pseudo R^2	16.00%		16.61%		16.05%		16.00%	
N	4017		4017		4017		4017	

Table 9. Critical Board Positions of Former Employee Directors

In the following table, *former(audit)* equals one if a firm has at least one former employee director in the audit committee; *former(compensation)* equals one if a firm has at least one former employee director in the compensation committee; *former(nomination)* equals one if a firm has at least one former employee director engaged in nominating other board members. *Former(no-audit)* equals one if a firm has *ONLY* former employee directors who do not serve on the audit committee. *Former(no-compensation)* equals one if a firm has *ONLY* former employee directors who do not serve on the compensation committee. *Former(no-nomination)* equals one if a firm has *ONLY* former employee directors who do not serve on the nomination committee. Detailed definitions of the variables are available in Appendix A. Control variables include monthly stock price *volatility*, annual *stock return*, *board size*, *firm size*, and *operating profit*. *Z* statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1) fraud		(2) fraud		(3) fraud	
	est.	dF/dX	est.	dF/dX	est.	dF/dX
former(audit)	0.538***	0.08***				
	(3.43)	(3.44)				
.former(no-audit)	0.190**	0.03**				
	(2.00)	(2.01)				
former(compensation)			0.636***	0.09***		
			(3.04)	(3.05)		
former(no-compensation)			0.229**	0.03**		
			(2.54)	(2.56)		
former(nomination)					0.265	0.04
					(1.41)	(1.41)
former(no-nomination)					0.289***	0.04***
					(3.24)	(3.27)
Pairwise Diff	0.348**		0.407*		-0.024	
Control Variables	YES		YES		YES	
Industry/Year FE	YES		YES		YES	
Cluster by Firm	YES		YES		YES	
Pseudo R^2	16.16%		16.12%		15.88%	
N	4017		4017		4017	

Table 10. Former Employee Directors and Their Years since Retirement

In the following table, we run a probit regression of the *fraud* dummy on the existence of former employee director(s) and the existence of former employee director(s) who retired long time ago. *Gap* is defined as the current year minus the year when the former employee left his/her executive position. *Non-recent* is defined according to the *Gap*. For example, in Column 1, the *non-recent* dummy turns on if the firm *ONLY* has former employee directors who retired more than six years ago. To increase the robustness of our inference, we test six, eight and 10 years as alternative cutoffs. *Z* statistics are in parentheses. Control variables include monthly stock price *volatility*, annual *stock return*, *board size*, *firm size*, and *operating profit*. *Z* statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
	Gap > =6 years	Gap >= 8 years	Gap > =10 years
	fraud	fraud	fraud
former	0.30***	0.30***	0.30***
	(2.91)	(3.24)	(3.20)
*former*non-recent*	-0.03	-0.06	-0.05
	(-0.19)	(-0.41)	(-0.31)
Control Variables	Yes	Yes	Yes
Industry/Year FE	Yes	Yes	Yes
Cluster by Firm	Yes	Yes	Yes
Pseudo R^2	15.88%	15.89%	15.88%
N	4017	4017	4017

Table 11. Causal Regressions

In the following table, we report our main identification regressions. *Fraud* dummy is our main dependent variable. *former (%)* represents the percentage of former employees on board. We break down the former employee directors to recently-retired former employee directors who quit their executive positions less than three years ago (subject to regulatory shocks) and the rest of former employee directors. According to the presence of the former group at the end of year 2001, we define our treatment group. Panel A reports the covariate balancing between our treatment and control groups at the end of year 2001. In Panel B, we conduct instrumental variable (IV) probit regressions on various experiment windows to show the robustness of our identification strategy. In Column 1, we set the window to be sharp, one-year pre-treatment (2001) and one-year treatment year (2002) using the treated group we define in Panel A. In Columns 2 to 4 of Panel B, we extend our treatment period to 2004 to broadly capture any staggered treatment effects. In Column 4, we also extend our pre-treatment years including 2000 as well as 2001. *Treatment Group #1* in Columns 1 and 2 consists of firms whose boards include a recently retired former employee director as of the end of 2001. Alternatively, *Treatment Group #2* in Columns 3 and 4 consists of firms whose boards include a recently retired former employee director as of 2001, but the group is adjusted to the time passage effects. See Section 6 of our main text for more detailed explanations on these time passage effects. *Shock* is our instrument that takes a value of one if a firm is treated in a given year. Control variables include monthly stock price *volatility*, annual *stock return*, *board size*, *firm size*, and *operating profit*. *Z* (or *t*) statistics are reported in the parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A	Treatment Group		Control Group		Difference
	N	Mean	N	Mean	(t-statistic)
volatility	53	0.117	272	0.123	-0.006
					(-0.62)
operating profit	53	0.103	272	0.093	0.010
					(0.42)
firm size	53	8.76	272	8.97	-0.209
					(-0.85)
leverage	53	0.209	272	0.224	-0.015
					(-0.53)
market value	53	8.93	272	8.99	-0.058
					(-0.31)
I(%)(BoardEx)	53	58	272	60	-2.00
					(-0.85)
board size	53	9.60	272	9.08	0.523
					(0.99)

Panel B	(1)		(2)		(3)		(4)	
	01-02 (T=02)		01-04 (T=02,03,04)		01-04 (T=02,03,04)		00-04 (T=02,03,04)	
	Treatment Group #1		Treatment Group #1		Treatment Group #2		Treatment Group #2	
	2-Stage	1-Stage	2-Stage	1-Stage	2-Stage	1-Stage	2-Stage	1-Stage
former (%)	0.06***		0.07***		0.06***		0.06***	
	(3.02)		(4.40)		(3.06)		(3.46)	
Shock		-2.80*		-2.75**		-4.24***		-2.30**
		(-1.92)		(-2.36)		(-3.20)		(-2.21)
Over-Id P-Value		0.609		0.983		0.759		0.439
1-Stage Prob > F		0.000		0.000		0.000		0.000
Control Variables	YES	YES	YES	YES	YES	YES	YES	YES
Industry/Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Cluster by Firm	YES	YES	YES	YES	YES	YES	YES	YES
N	464	464	985	985	985	985	1452	1452

Table 12. CEO Turnover and Former Employee Director

In the following table, we run a probit regression of CEO *Turnover* on the existence of former employee director(s). *Turnover* dummy is our main dependent variable. *BNH3* represents the buy-and-hold return in the past three years including dividends. *ABBNH3* represents the buy-and-hold return in the past three years after adjusting for the CRSP value-weighted return during the same period. Control variables include *board size*, *firm size*, *CEO_Chairman* duality dummy, and *CEO's tenure* within the firm. *Z* statistics are reported in the parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
	Turnover	Turnover	Turnover	Turnover
BNH3	-0.0613*		-0.0945**	
	(-1.93)		(-2.36)	
ABBNH3		-0.0623*		-0.116***
		(-1.95)		(-2.63)
former	-0.176***	-0.176***	-0.215***	-0.207***
	(-2.91)	(-2.91)	(-3.39)	(-3.42)
*former*BNH3*			0.0792*	
			(1.67)	
*former*ABBNH3*				0.114**
				(2.41)
size	0.00968	0.00964	0.00835	0.00764
	(0.42)	(0.42)	(0.36)	(0.33)
board size	0.0400***	0.0399***	0.0401***	0.0398***
	(3.30)	(3.30)	(3.33)	(3.33)
CEO_chairman	-0.231***	-0.231***	-0.233***	-0.233***
	(-3.22)	(-3.22)	(-3.24)	(-3.24)
CEO_tenure	-0.0291***	-0.0291***	-0.0288***	-0.0288***
	(-4.58)	(-4.59)	(-4.54)	(-4.56)
Constant	-1.383***	-1.444***	-1.349***	-1.415***
	(-4.26)	(-4.50)	(-4.14)	(-4.39)
Industry/Year FE	Yes	Yes	Yes	Yes
Cluster by Firm	Yes	Yes	Yes	Yes
Pseudo R^2	5.28%	5.29%	5.37%	5.47%
N	3912	3912	3912	3912

Table 13. Robustness Checks

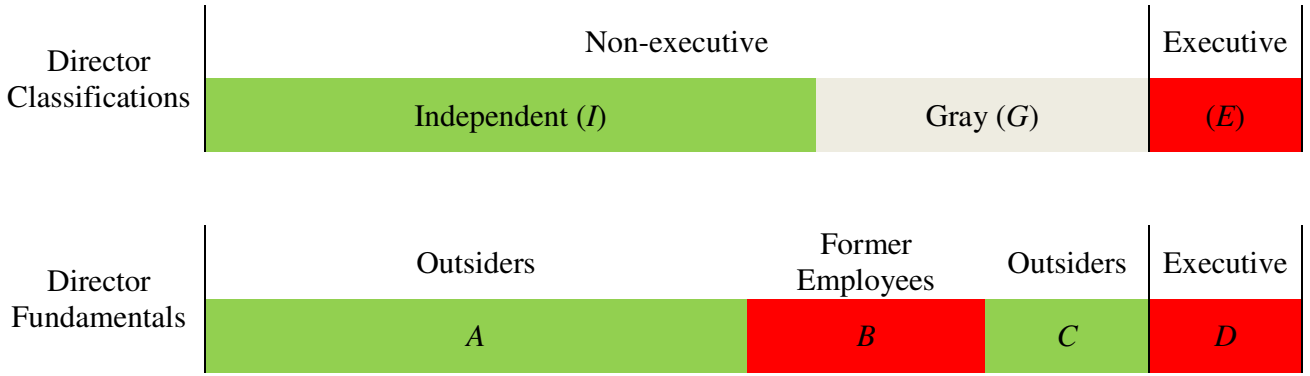
This table reports the robustness of our main results to various alternative specifications and controls. In Column 1 of Panel A, we use a logit specification, instead of a probit. In Column 2 and Column 3 of Panel A, we create alternative dependent variables according to the statuses of class action suits and the scope of the fraud sample. We re-run our baseline probit regressions as specified in Eq. (2) of our main text. *Settled* is the dependent variable that equals one if the company was associated with class action suits that are already settled as of Jan 2016. *SCAC + AAER* is the dependent variable that equals one if the company was sued by private investors (SCAC) *or* faced enforced actions initiated by SEC (AAER). In Columns 4 and 5 of Panel A, we report the same probit regressions with the *fraud* dummy as our dependent variable, while we replace our original control variables with the 3-year average *operating profit*, *ROA*, and *BNH*. In Panel B, we show the robustness of our results to controlling for external governance variables. In Columns 1 and 2 of the panel, we first show the relation between the external governance variables and the existence of a former employee on the board. We run alternative probit regressions using former employee director dummy (*former*) as the dependent variable. In the next Columns 3 and 4, we report that our baseline probit regressions using our functioning board independence as a main explanatory variable are robust to controlling for the additional external governance variables. Our original control variables in the baseline probit specification include monthly stock price *volatility*, annual *stock return*, *board size*, *firm size*, and *operating profit*. *Z* statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A	Logit	Alternative Dependent		3-Year Average	
	(1)	(2)	(3)	(4)	(5)
	Fraud	Settled	SCAC + AAER	fraud	fraud
I+G-former (%)	-0.02***	-0.01**	-0.01***	-0.02***	-0.01***
	(-2.62)	(-2.00)	(-2.89)	(-3.18)	(-2.96)
operating profit3				1.35**	
				(2.04)	
ROA3					1.58**
					(2.14)
BNH3				0.06**	0.06**
				(2.01)	(2.02)
operating profit	2.58***	0.95**	1.30***		
	(3.35)	(2.02)	(3.21)		
stock return	-2.95	-2.86**	-1.48		
	(-1.42)	(-2.31)	(-1.51)		
volatility	3.23**	1.36*	1.92***	1.58**	1.88***
	(2.50)	(1.68)	(3.00)	(2.32)	(2.69)
firm size	0.54***	0.24***	0.27***	0.31***	0.30***
	(7.18)	(5.25)	(7.05)	(7.63)	(7.48)
board size	-0.03	-0.02	-0.02	-0.02	-0.01
	(-0.79)	(-1.09)	(-1.23)	(-1.17)	(-0.76)
Constant	-3.71***	-1.49***	-1.71***	-3.32***	-2.28***
	(-4.32)	(-2.67)	(-3.81)	(-7.97)	(-4.75)
Industry/Year FE	YES	YES	YES	YES	YES
Cluster by Firm	YES	YES	YES	YES	YES
Pseudo R^2	16.14%	13.38%	16.23%	15.49%	15.55%
N	4017	3626	4017	3913	3919

Panel B	Deterministic Regression		Fraud Regression	
	(1)	(2)	(3)	(4)
Gov. Provisions	00-06 former	00-12 former	00-06 fraud	00-12 fraud
G-Index	-0.020		0.00939	
	(-0.61)		(0.30)	
super majority	0.093	0.0998	0.199	0.107
	(0.56)	(0.77)	(1.15)	(0.81)
golden parachute	-0.119	-0.200**	0.0344	0.0385
	(-0.88)	(-2.02)	(0.27)	(0.44)
classified board	-0.176	-0.138	-0.116	-0.0369
	(-1.26)	(-1.33)	(-0.92)	(-0.37)
dual class	0.338	0.252	0.0730	-0.0649
	(1.54)	(1.35)	(0.36)	(-0.40)
poison pill	-0.048	-0.0199	-0.0194	-0.0291
	(-0.37)	(-0.19)	(-0.15)	(-0.29)
I+G-former(%)			-0.0101*	-0.0105**
			(-1.69)	(-2.37)
formers' shareholdings (%)			0.0223	0.0126
			(0.62)	(0.46)
Constant	0.462	1.213***	-4.392***	-2.097***
	(0.35)	(7.37)	(-3.89)	(-4.14)
Baseline Controls	NO	NO	YES	YES
Industry/Year FE	YES	YES	YES	YES
Cluster by Firm	YES	YES	YES	YES
Pseudo R^2	7.74%	7.50%	17.00%	15.58%
N	2258	4321	1971	3895

Figure 1. Traditional vs. Functional Board Independence

In the following figure, we compare the database-driven traditional board classification and the functional classification that we emphasize based on director fundamentals. In traditional board classification, a director is reported as independent (*I*), gray (*G*) or executive (*E*). Only non-executive independent directors (*I*) are classified as active monitors on the incumbent management team. In contrast, in our functional board classification, the same directors are classified as functional outsider (could be either independent or gray), former employees (could be either independent or gray), and executives.

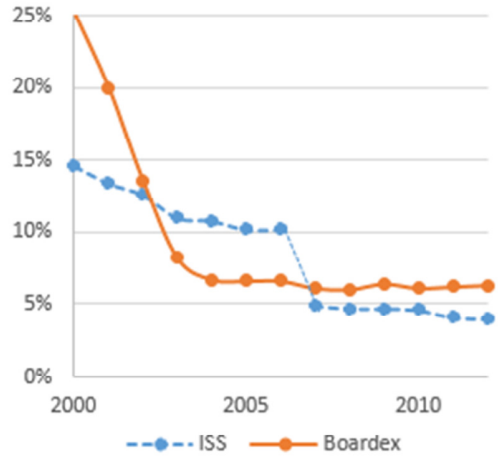


A = Directors classified as independent that are not former employees
B = Former employee directors, classified as either gray or independent
C = Directors classified as gray that are not former employees
D = Executive/employee directors

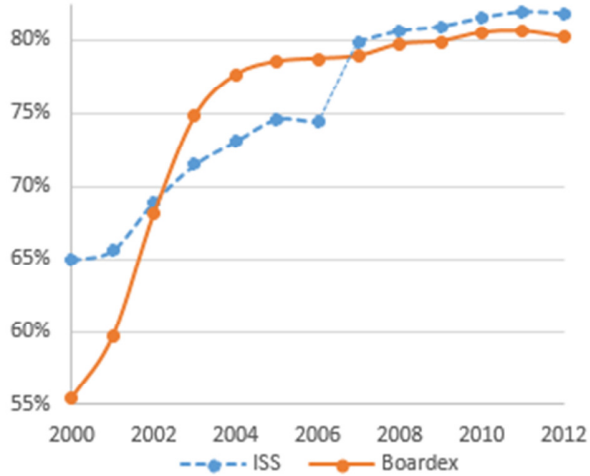
Figure 2. Self-Reported (BoardEx) vs. Independently Identified (ISS) Board Compositions

In the following figures, we show the self-reported and independently-identified board compositions of S&P 500 firms over time. The solid lines represent the average board grayness (Panel A), independence (Panel B) and board size (Panel C) in BoardEx, while the dashed lines show the same average levels using ISS (formerly RiskMetrics Group). Due to the acquisition by RiskMetrics Group, ISS changed their independence standards in 2007. We connect the 2006 data point and the 2007 data point with dotted lines to emphasize the structural break in ISS data.

Panel A. Average Board Grayness



Panel B. Average Board Independence



Panel C. Average Board Size

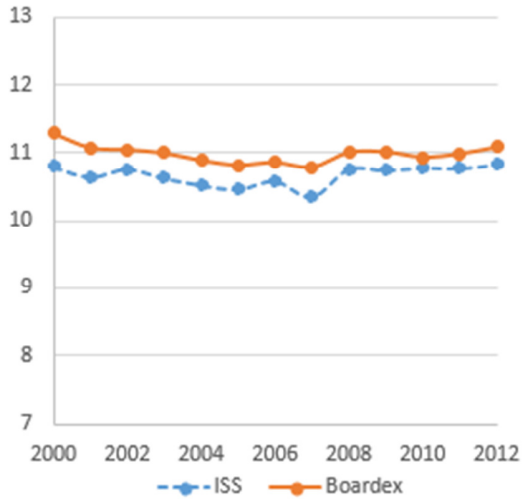


Figure 3. Heterogeneous Reactions of Former Employee Directors to SOX

In the following figure, we plot the number of former employee directors who recently retired less than or equal to three years ago (subject to the regulatory shock) and the number of other former employee directors. The dashed line describes the trend of recently retired former employee directors during the SOX compliance period (2002-2004), while the solid line shows the pattern for other former employee directors. The figure starts at the end of year-2000 till the end of year-2005.